

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)**

III - B. Tech II-Semester Regular Examinations (BR23), APR/MAY - 2026

MICROPROCESSOR AND MICROCONTROLLERS (EEE)

Time: 3 hours

Max. Marks: 70

*Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A and Part-B*

PART-A (10X2 = 20M)

	Marks	CO	BL
1. a) Define pipelining in 8086.	(2M)	CO1	BL1
b) List the general-purpose registers in 8086.	(2M)	CO1	BL1
c) What is the purpose of ASSUME directive?	(2M)	CO2	BL1
d) What are the types of buses in 8086?	(2M)	CO2	BL1
e) What is the function of control word in 8255?	(2M)	CO3	BL1
f) Draw the block diagram of 8255.	(2M)	CO3	BL2
g) How many channels are available in 8257?	(2M)	CO4	BL1
h) What is HOLD signal?	(2M)	CO4	BL1
i) What is a PIC microcontroller?	(2M)	CO5	BL1
j) What is the function of TRIS register?	(2M)	CO5	BL1

PART-B (5X10 = 50M)

2a. Draw and explain the architecture of 8086 microprocessor.	5(M)	CO1	BL1
b. Explain the instruction queue mechanism in 8086 (OR)	5(M)		BL1
3a. Describe the functions of general-purpose registers in 8086.	5(M)	CO1	BL1
b. Compare 80286, 80386, 80486, and Pentium processors.	5(M)		BL2
4a. Explain the classification of 8086 instruction set with examples.	5(M)	CO2	BL1
b. Describe data transfer, arithmetic, and logical instructions of 8086 (OR)	5(M)		BL2
5a. Explain control transfer instructions with suitable examples.	5(M)	CO2	BL3
b. Discuss immediate, direct, register, and indexed addressing modes.	5(M)		BL3
6a. Explain the Architecture of 8255 PPI Interfacing	5(M)	CO3	BL2
b. What are different mode of operations in 8255 PPI. Explain only I/O mode in 8255 PPI (OR)	5(M)		BL1
7a. Explain the Architecture and Interfacing of 8257 DMA Controller?	10(M)	CO3	BL1 BL1

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| 8a. | Explain serial communication in 8051. | 5(M) | CO4 | BL1 |
| b. | Explain interfacing of external devices with 8051. | 5(M) | | BL2 |
| (OR) | | | | |
| 9a. | Explain the following terms (i) TCON (ii) TMOD | 5(M) | CO4 | BL2 |
| b. | Write an 8051 program for delay generation. | 5(M) | | BL3 |
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| 10a | Explain the role of special function registers (SFRs) in PIC18. | 5(M) | CO5 | BL3 |
| b. | Write a C program to blink an LED using PIC18. | 5(M) | | BLE |
| (OR) | | | | |
| 11a | Discuss the use of header files and directives in PIC C. | 5(M) | CO5 | BL 3 |
| b. | Explain different data types used in PIC C programming. | 5(M) | | BL2 |
